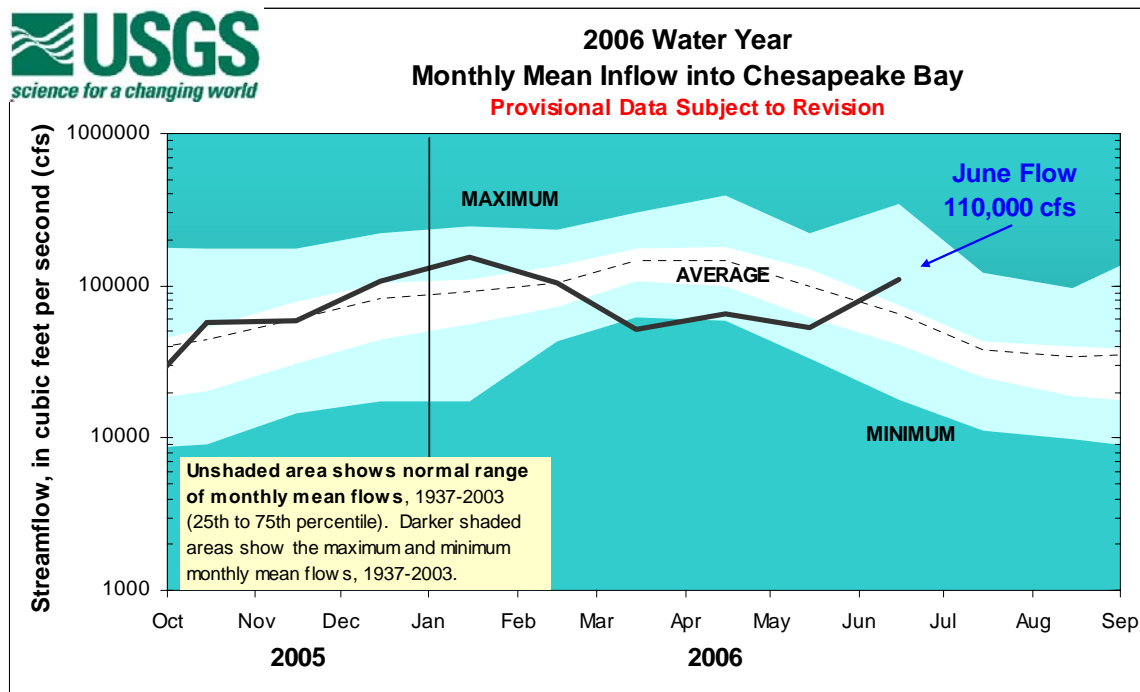


Impacts of June, 2006 Rains on River Flow and Pollutant Loads into Chesapeake Bay

Prepared by USGS, July 5, 2006

During June, 2006 the river flow into the Chesapeake Bay watershed was above average due to abnormally high rainfall during the last week of the month. The estimated mean monthly river flow for June was 110,000 cubic feet per second (cfs), which is 31 percent above average (see graph below). The highest mean monthly river flow was 342,000 cfs which occurred in 1972, as a result from of rainfall from remnants of Hurricane Agnes and caused substantial degradation of the Bay ecosystem.



Additional information about River flow to the Bay can be found at:

<http://chesapeake.usgs.gov/streamflow.html>

The possible consequences of high river flow in the Bay, especially during the summer months, include degraded water quality for fisheries and aquatic grasses. The higher river flows increase the amount of nutrients, sediment, and contaminants that enter the Bay. Higher nutrient levels lead to algal blooms, which can decrease the amount of oxygen in the Bay and result in fish kills. The algal blooms, along with increased amounts of sediment, can cause a decrease in the water clarity needed for aquatic grasses. The grasses are an important habitat for crabs, fish, and food for waterfowl. The Chesapeake Bay Program has more extensive information on the water-quality and living resource impacts to the Bay which can be found at:

<http://www.chesapeakebay.net/index.cfm>

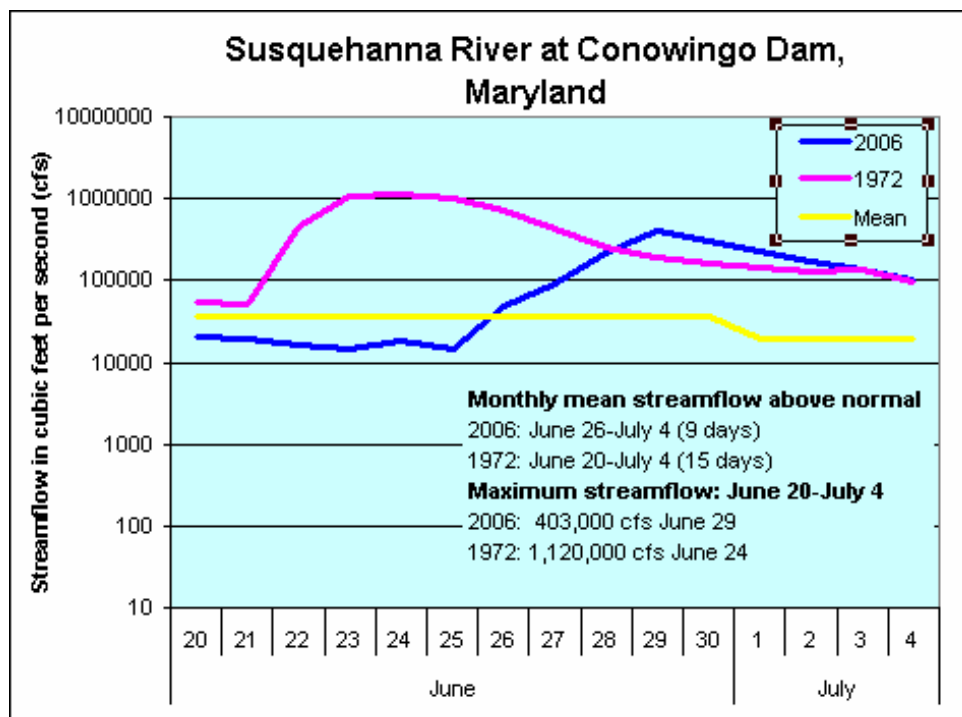
The daily river flows for late June 2006 did not approach levels recorded during Hurricane Agnes in 1972 in the three largest rivers entering the Chesapeake Bay (see

table). The maximum mean daily flows in June 2006 were only 36%, 23%, and 25% of the June, 1972 levels for the Susquehanna, Potomac, and James rivers respectively.

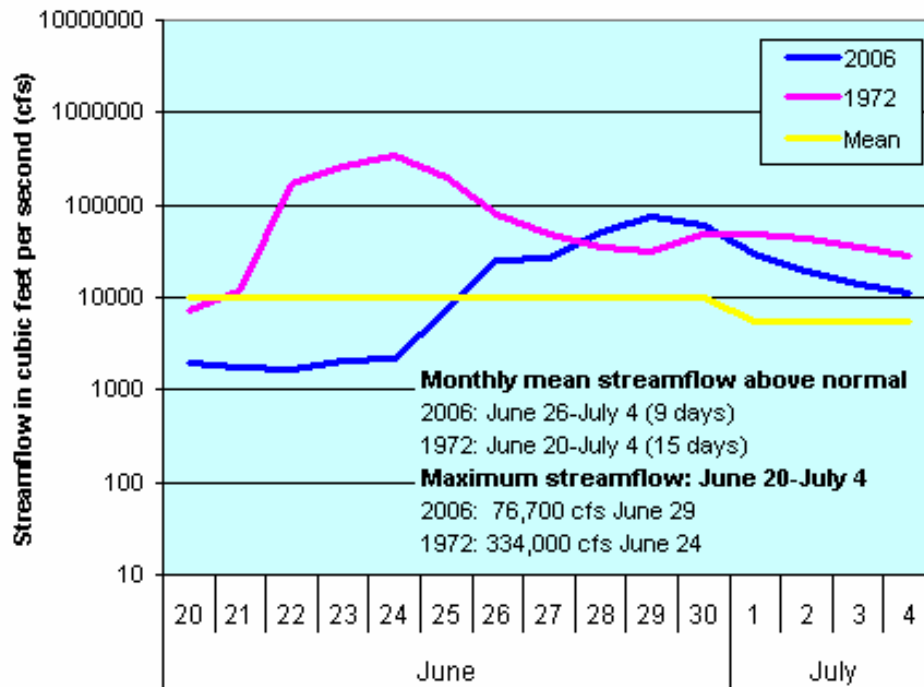
River	Maximum Mean Daily Discharge (cfs) June, 1972	Maximum Mean Daily Discharge (cfs) June, 2006
Susquehanna River	1,120,000	403,000
Potomac River	334,000	76,700
James River	296,000	73,400

The duration of the high flows due to the remnants of Hurricane Agnes was also greater in 1972 than in 2006 (see below for graphs of each river).

The USGS collected water-quality samples from stations on the 9 major rivers entering the Chesapeake Bay during the latest high flow event. The samples were collected as part of the USGS River-Input Project, a cooperative project between the USGS, the Maryland Department of Natural Resources, and the VA Department of Environmental Quality, that provides estimates of pollutant loads and trends to the Bay. The River-Input stations, which are located at the head of tide, represent 78% of the drainage area of the Chesapeake Bay watershed. The results from the samples will be used to estimate the amount of nutrients and sediment that entered the Bay in 2006.



Potomac River at Washington, D.C.



James River near Richmond, Virginia

